

CLAIMS

1. Sample support (3, 10) designed to support a sample (13) which is to be detected and/or analysed by a photothermal detection method using an irradiation pump beam (21a) irradiating the sample (13) and a detection and/or analysis probe beam (22), characterised in that it comprises a substrate (11) supporting a stack of thin dielectric layers forming a Bragg mirror (12) on which the sample (13) will be supported, the stack of thin dielectric layers being used to reflect the pump beam (21a) that reaches it.

2. Sample support (3, 10) according to claim 1, characterised in that the Bragg mirror (12) includes thin dielectric layers with a high refraction index, formed from a material chosen from among the group composed of  $\text{TiO}_2$ ,  $\text{HfO}_2$ ,  $\text{SiO}_3\text{N}_4$ ,  $\text{Ta}_2\text{O}_5$ ,  $\text{Al}_2\text{O}_3$  and  $\text{In}_2\text{O}_3$ .

3. Sample support (3, 10) according to claim 1, characterised in that the Bragg mirror (12) includes thin dielectric layers with a low refraction index, formed from a material chosen from among the group composed of  $\text{SiO}_2$ ,  $\text{MgF}_2$  and  $\text{LiF}$ .

4. Sample support (3, 10) according to claim 1, characterised in that the upper layer forming the Bragg mirror (12) is biocompatible with the sample (13).

5. Sample support (3, 10) according to claim 1, characterised in that the upper layer forming the Bragg mirror (12) is a layer with a low refraction index.

5        6. Device for detection and/or analysis of a sample (13) by a photothermal method, the said device comprising a sample support (3, 10) according to any one of claims 1 to 5, a means of lighting the sample supported by the said support and supplying a pump beam (1, 21a), a means  
10 of detection and/or measurement of the absorption or reflection of the pump beam by the sample when it is illuminated by the said illumination means.

7. Device according to the previous claim,  
15 characterised in that it also comprises a means of positioning the said detection and/or measurement means.

8. Device according to claim 6, characterised in that the means of illuminating the sample and providing  
20 the pump beam (1, 21a) is a laser source.

9. Device according to claim 6, characterised in that the means of detection and/or measurement of absorption or reflection of the pump beam by the sample  
25 comprises a light source supplying a probe beam (2, 22) and means of detecting the deviation of the probe beam.

10. Device according to the previous claim, characterised in that the means of detecting the

deviation of the probe beam (2, 22) comprise a multi-element photodiode or a simple photodiode.

11. Device according to any one of claims 6 to 10,  
5 characterised in that the wavelength of the pump beam (1, 21a) is chosen so that the sample (13) is absorbent at this wavelength.

12. Device according to any one of claims 6 to 10,  
10 characterised in that the wavelength of the pump beam (1, 21a) is chosen so that markers provided on the sample (13) absorb light at this wavelength.

13. Use of the device according to any one of claims  
15 6 to 12 for a test, a diagnosis or detection of oligonucleotide hybridisation, in a liquid medium or in air, on a solid support for "screening" purposes or for the detection of hybridisation on biochips.